We thank Prof. Ferraz-Mello for taking the time to comment on our article. We’ve responded to his suggestions below.

COMMENTS TO THE AUTHOR:

Reviewer #1: Thank you for incorporating the changes I have requested. I believe the paper is much improved and nearly ready for publication. I have some small requests and suggestions below, please try to address them in the final version.

>> We neglected to add the appropriate reference to Béky, Holman et al. ApJ 788(1), 2014 which discusses the observational evidence as well as theoretical justification for a 6:1 commensurability between HAT-P-11's spin period and the planet's orbital period. We have now added that reference.

>> Among other possibilities, they explore the idea that differential rotation in HATP-11's photosphere could result in a particular latitude's having a rotation period commensurate with the planet's orbit. Then some magnetic or other interaction with the planet could cause a star spot to preferentially form and persist along that latitude, giving rise to the long-lived commensurability observed.

Thank you for adding this reference. Personally, I give little credence to the idea that such commensurabilities are anything other than coincidences (except in the case of 1:1 commensurability which is the endstate of tidal evolution). But this is of minor importance to the paper, so I will not further object to this issue.

Our response – We agree that the commensurability, if it exists, is puzzling. In any case, the idea has been published, so we opt to keep the reference in.

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Page 9: Paragraph ending with "could result in unstable mass transfer, consistent with our discussion here."

Thank you for adding in this analysis. I think it would be constructive to add in an estimate for $\delta \gamma$ in the limit that no mass is lost from the system. In this case, the specific angular momentum accreted onto the star is sqrt(G M\_\* R\_\*). This is equivalent to $\delta \gamma = \sqrt{R\_\*/a}$. This number is of order ½ for hot Jupiters. So, although $\delta \gamma$ may be small enough for stable mass transfer, it is significantly non-zero even in the case that no mass is lost from the system. In light of this, the use of $\delta \gamma =1/2$ in Figure 7 seems like a good choice. It would be interesting to make a version of Figure 7 with $\delta \gamma = \sqrt{R\_\*/a}$ at all points during the evolution (should be easy to put into your code), but I will leave that decision to the authors.

Our response -- This is an excellent point, and we plan to investigate it further in future work.

For now, we have added the following text to page 8 (also indicated in the revised manuscript submitted online):

Even in the case that no mass is lost from the system, we would still expect some loss of orbital angular momentum since gas accreted by the host star carries a specific angular momentum $\sqrt{G M\_\star R\_\star}$. For a planet undergoing RLO at semi-major axis $a$, this loss of orbital angular momentum amounts to $\gamma = \sqrt{R\_\star/a}$. For a hot Jupiter orbiting a Sun-like star and just encountering its Roche limit for the first time, $a = a\_{\rm Roche} \approx 0.01\ {\rm AU} \approx 2\ R\_\star$, and $\gamma = \sqrt{1/2}$. In a case like this one, $\delta \gamma$ is not a constant during RLO (as assumed in this study) but evolves as the orbit evolves. We leave exploration of the influence of an evolving $\delta \gamma$ for future work, but we do consider a $\delta \gamma = 0.5$ below.

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Page 9: Paragraph beginning with "Without solving the equations in detail…"

Here and throughout the manuscript, I do not think that the word "disrupting" or "disruption" should be used for hot Jupiters undergoing stable mass loss. Disruption indicates unstable mass transfer, for example as in tidal disruption events. I think a better choice of words would be "mass-losing" or "mass-transferring" or "Roche lobe-overflowing" or "stripped atmosphere" or something similar. Please also change wording in outcomes #3 and #4 below, and in the discussion.

Our response – We’ve dropped “disrupt”, “disruption”, and “disrupting” everywhere it was used inappropriately (as described by the above comment), including in the paper’s title, which has been changed to “Tidal Decay and Stable Roche-Lobe Overflow of Short-Period Gaseous Exoplanets”. In many places, we replaced “disrupting” with “overflowing”.

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Page 15: "Similar results obtain for the Q\_star=10^6 and $\delta \gamma=0.5$ cases.

This does not really seem to be an accurate statement. Comparing Figures 4, 6, and 7, The Q\_star =10^6 case has the longest evolution timescale, whereas the $\delta \gamma=0.5$ has the fastest evolution time scale once mass transfer begins. Please reword.

Our response – We replaced the sentence above with “Likewise, the $Q\_\star = 10^6$/$\delta \gamma = 0.5$ case (not shown) closely resembles the $Q\_\star = 10^6$/$\delta \gamma = 0$ (Figure 6): once it starts, RLO proceeds more rapidly for the former than for the latter case, but, qualitatively, the evolution for both is very similar.”